



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,361	10/02/2003	Tomoya Maekawa	10873.1305US01	4013
23552	7590	12/13/2004	EXAMINER	
MERCHANT & GOULD PC			HAM, SEUNGSOOK	
P.O. BOX 2903				
MINNEAPOLIS, MN 55402-0903			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/678,361

Applicant(s)

MAEKAWA ET AL.

Examiner

Seungsook Ham

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.  
4a) Of the above claim(s) 5-15, 17 and 21-41 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4, 16 and 18-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 2 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/10/03, 2/9/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

Art Unit: 2817

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Species I, figures 2, 3 and 13 in the reply filed on November 15, 2004 is acknowledged.

Claims 5-15, 17, and 21-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species II-X, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 15, 2004. It should be noted that claim 18 will be considered as a part of elected Species I.

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Nishijima et al. (US '158).

Nishijima et al. (figs. 8A-8D) discloses a duplexer comprising a laminate in which dielectric layers 21a, 21b and electrode layers 10, 11a-11e are laminated alternately, comprising: a first filter having at least one first stripline resonator for transmitting 11d, 11e and a second filter having at least one second strip resonator for receiving 11a-11c and provided in laminate and have different pass band frequencies (it is inherent that the Rx and Tx filters will have different pass band frequencies to operate as a duplexer); a matching circuit comprising a coupling line 26b having one end is short-circuited and the other end is connected to an external terminal 13; the at least first stripline resonator and the at least second stripline resonator are short-circuited at one end (i.e., grounded), and are coupled to the coupling line by electromagnetic field coupling (it is inherent that the coupling line 26b are electromagnetically coupled to adjacent resonators 11c, 11d).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 2817

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishijima et al. (US '158) in view of Hirai et al. (US '130).

Although Nishijima et al. (figs. 8A-8D) does not show taper stripline resonators ("at least one of the first stripline resonator and the second stripline resonator has a large line width on an open end side and a small line width on a short-circuited side"), figure 1B shows a plurality of tapered resonators. Moreover, taper stripline resonators are well known in the art as shown by Hirai et al. (fig. 15). It would have been obvious to one of ordinary skill in the art to provide at least one of the first and second stripline resonators having a taper shape in the device of Nishijima et al. since taper resonators are well known in the art as shown by Hirai et al.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishijima et al. (US '158) in view of Tada et al. (US '521).

Nishijima et al. is applied as above. Nishijima et al. does not show the coupling line having one end being open-circuited. Tada et al. (fig. 11) discloses a similar stripline duplexer having a coupling line 13 having one end being open-circuited and other end being connected to an external terminal ANT. It would have been obvious to one of ordinary skill in the art to provide the coupling line having one end being open-circuited in the device of Nishijima et al. to obtain a desired filter characteristic since

Tada et al. suggests that the coupling line can be either open-circuited (fig. 11) or short-circuited (figs. 12A-12D).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishijima et al. (US '158) in view of Tada et al. (US '521) as applied to claim 16 above, and further in view of Hirai et al. (US '130).

Although the modified device of Nishijima et al. does not show taper stripline resonators ("at least one of the first stripline resonator and the second stripline resonator has a large line width on an open end side and a small line width on a short-circuited side"), Nishijima et al. (see figure 1B) shows a plurality of tapered resonators. Moreover, taper stripline resonators are well known in the art as shown by Hirai et al. (fig. 15). It would have been obvious to one of ordinary skill in the art to provide at least one of the first and second stripline resonators having a taper shape in the modified device of Nishijima et al. since taper resonators are well known in the art as shown by Hirai et al.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukamoto et al. (US '625) in view of Nishijima et al. (US '158).

Tsukamoto et al. (fig. 5) discloses a duplexer comprising: a first filter having at least one first taper stripline resonator for transmitting 23a, 23b and a second filter having at least one second taper strip resonator for receiving 23d-23f, and have different pass band frequencies (see fig. 7); a matching circuit comprising a coupling line 26b having one end is short-circuited and the other end is connected to an external terminal 13 (col. 9, lines 50-54); the at least first stripline resonator and the at least

Art Unit: 2817

second stripline resonator are short-circuited at one end (i.e., grounded), and are coupled to the coupling line by electromagnetic field coupling (i.e., (i.e., interdigital coupling inherently provides electromagnetic coupling), col. 9, lines 63-67). Although Tsukamoto et al. does not show laminated structure, providing an upper dielectric layer and a ground electrode to form a laminated/Triplate structure is well known in the art. Nishijima et al. (figs. 8A-8D) discloses a laminated/Triplate filter. It would have been obvious to one of ordinary skill in the art to provide an upper dielectric layer and a ground electrode to cover the dielectric layer in the device of Tsukamoto et al. to form a laminated structure since such design technique is well known in the art as shown by Nishijima et al.

Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukamoto et al. (US '625) in view of Nishijima et al. (US '158) as applied to claims 1 and 2 above, and further in view of Tada et al. (US '521).

The modified device of Tsukamoto et al. does not show the coupling line having one end being open-circuited. Tada et al. (fig. 11) discloses a similar stripline duplexer having a coupling line 13 having one end being open-circuited and other end being connected to an external terminal ANT. It would have been obvious to one of ordinary skill in the art to provide the coupling line having one end being open-circuited in the device of Tsukamoto et al. to obtain a desired filter characteristic since Tada et al. suggests that the coupling line can be either open-circuited (fig. 11) or short-circuited (figs. 12A-12D).

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Tsukamoto et al. (US '625).

Applicant's Admitted Prior Art (fig. 24) discloses the same laminated duplexer except the first stripline resonator and the second stripline resonators are coupled to the coupling line 70p by electromagnetic field coupling.

Tsukamoto et al. (fig. 5) discloses a stripline duplexer having a first taper stripline resonator 23b and the second taper stripline resonator 23d are electromagnetically coupled (i.e., interdigital coupling inherently provides electromagnetic coupling) to the coupling line 26b (col. 9, lines 62-67). It would have been obvious to one of ordinary skill in the art to provide a coupling line in the device of Applicant's Admitted Prior Art for electromagnetic field coupling between a resonator and the coupling line to obtain a small-sized device as taught by Tsukamoto et al. (col. 4, lines 9-12).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Tsukamoto et al. (US '625) as applied to claims 1-3 above, and further in view of Nakakubo et al. (US '891).

The modified device of Applicant's Admitted Prior Art lacks at least one of the dielectric layers having a different dielectric constant. Nakakubo et al. discloses a laminated filter device having dielectric layers having different dielectric constants (col. 10, lines 1-18). It would have been obvious to one of ordinary skill in the art to provide at least one of the dielectric layers having a different dielectric constant in the modified device of Applicant's Admitted Prior Art to reduce the unwanted coupling between the resonators and input/output lines as taught by Nakakubo et al.



Claims 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Tada et al. (US '521).

Applicant's Admitted Prior Art (fig. 24) discloses the same laminated duplexer except the first stripline resonator and the second stripline resonators are coupled to the coupling line 70p by electromagnetic field coupling and the coupling line having one end being open-circuited.

Tada et al. (fig. 11) discloses a stripline duplexer a coupling line 13 having one end open-circuited. Moreover, the resonator 14a and 12c are electromagnetically coupled to the coupling line 13 (col. 7, lines 43-67). It would have been obvious to one of ordinary skill in the art to provide a coupling line having one end open-circuited in the device of Applicant's Admitted Prior Art for electromagnetic field coupling between a resonator and the coupling line to provide a band-elimination filter characteristics as taught by Tada et al. (col. 7, lines 55-67). Moreover, providing taper resonators are considered as an obvious modification since such resonators are well known in the art.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Tada et al. (US '521) as applied to claims 1-3 above, and further in view of Nakakubo et al. (US '891).

The modified device of Applicant's Admitted Prior Art lacks at least one of the dielectric layers having a different dielectric constant. Nakakubo et al. discloses a laminated filter device having dielectric layers having different dielectric constants (col. 10, lines 1-18). It would have been obvious to one of ordinary skill in the art to provide at least one of the dielectric layers having a different dielectric constant in the modified

Art Unit: 2817


device of Applicant's Admitted Prior Art to reduce the unwanted coupling between the resonators and input/output lines as taught by Nakakubo et al.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Seungsook Ham  
Primary Examiner  
Art Unit 2817

sh